

Pfu DNA Polymerase

Description: Pfu DNA Polymerase is a thermo-stable enzyme having a Mw of about 90kDa. Pfu DNA Polymerase is derived from E. coli that and cloned from Pyrococcus furiosus strain Vc1 DSM3638. Pfu DNA Polymerase replicates DNA at 75°C, catalyzing the polymerization of nucleotides into duplex DNA in the 5

Catalog #:ENPS-272

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Synonyms: DNA polymerase, EC 2.7.7.7, Pfu polymerase, Pfu-DNA Polymerase.

Source: Escherichia Coli.

Physical Appearance: Sterile liquid formulation.

Formulation:

50mM Tris-HCl, pH 8.2, 1mM DTT, 0.1mM EDTA, 0.05% CHAPS and 50% glycerol.

Stability:

Pfu DNA Polymerase although stable at 10°C for 5 days, should be stored below -18°C. Please prevent freeze-thaw cycles.

Usage:

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Applications:

1. Ideal for high-fidelity amplification. 2. 3'-5' exonuclease activity provides a low error rate. 3. One of the most thermostable DNA polymerases known. 4. Lack of extendase activity means no unwanted 3 overhangs. 5. Optimal for blunt-end PCR cloning. 6. Optimum temperature near 75°C. 7. 95% active after 1-hour incubation at 98°C.

Introduction:

Pfu DNA polymerase enzyme is found in the hyperthermophilic archaeon Pyrococcus furiosus, where it functions in vivo to replicate the organism's DNA. In vitro, Pfu is used to swiftly amplify DNA in the Polymerase Chain Reaction, where the enzyme serves the central function of copying a new strand of DNA during each extension step. Pfu DNA polymerase has superior thermostability and 'proofreading' properties compared to other thermostable polymerases. Unlike Taq DNA polymerase, Pfu DNA polymerase possesses 3' to 5' exonuclease proof reading activity, meaning that it works its way along the DNA from the 5' end to the 3' end and corrects nucleotide misincorporation errors. Pfu DNA polymerase-generated PCR fragments will have fewer errors than Taq-generated PCR inserts. As a result, Pfu is more commonly used for molecular cloning of PCR fragments than the historically popular Taq. Pfu DNA polymerase is superior for techniques that require high-fidelity DNA synthesis, but can also be used in conjunction with Taq polymerase to obtain the fidelity of Pfu with the speed of Taq polymerase activity.

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